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INDEX 'CAOLD, CAPLUS, APIPAT, APIPAT2, CROPU, DGENE, DPCI, EUROPATFULL, IFIPAT, INPADOC, JAPIO, PAPERCHEM2, PATDD, PATDPA, PATOSDE, PATOSEP, PATOSWO, PIRA, RAPRA, TULSA, TULSA2, USPATFULL, WPIDS, WPINDEX'
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24 FILES IN THE FILE LIST IN STNINDEX

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=> s bacillus?

3858	FILE CAOLD
51745	FILE CAPLUS
143	FILE APIPAT
143	FILE APIPAT2
6618	FILE CROPU
11305	FILE DGENE
1350	FILE DPCI
3071	FILE EUROPATFULL
2597	FILE IFIPAT
2728	FILE INPADOC
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249	FILE PAPERCHEM2
61	FILE PATDD
582	FILE PATDPA
241	FILE PATOSDE
713	FILE PATOSEP
454	FILE PATOSWO
67	FILE PIRA
29	FILE RAPRA
72	FILE TULSA
15	FILE TULSA2
14725	FILE USPATFULL
8421	FILE WPIDS
8421	FILE WPINDEX

24 FILES HAVE ONE OR MORE ANSWERS, 24 FILES SEARCHED IN STNINDEX

L1 QUE BACILLUS?

=> file hit

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=>•s l1

• L2 112306 L1

=> s l2 and alkalophil? and asporogen?

L3 8 L2 AND ALKALOPHIL? AND ASPOROGEN?

=> dup rem l3

DUPLICATE IS NOT AVAILABLE IN 'DGENE, CAOLD, DPCI'.
ANSWERS FROM THESE FILES WILL BE CONSIDERED UNIQUE
PROCESSING COMPLETED FOR L3
L4 7 DUP REM L3 (1 DUPLICATE REMOVED)

=> d ibib ab 1

L4 ANSWER 1 OF 7 USPATFULL
ACCESSION NUMBER: 96:12809 USPATFULL
TITLE: Thermostable arabino furanoside produced by **Bacillus** stearothermophilus NRRL B-18659, **Bacillus** stearothermophilus NRRL B-18660 and **Bacillus** stearothermophilus NRRL B-18661
INVENTOR(S): Zamost, Bruce L., Danbury, CT, United States
Elm, Dana D., Waterbury, CT, United States
PATENT ASSIGNEE(S): Novo Nordisk A/S, Bagsvaerd, Denmark (non-U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 5491087	19960213
APPLICATION INFO.:	US 1995-418044	19950406 (8)

RELATED APPLN. INFO.: Division of Ser. No. US 1993-87476, filed on 2 Jul 1993, now abandoned which is a continuation of Ser. No. US 1992-961044, filed on 14 Oct 1992, now abandoned which is a continuation of Ser. No. US 1990-535099, filed on 8 Jun 1990, now abandoned
DOCUMENT TYPE: Utility
PRIMARY EXAMINER: Naff, David M.
ASSISTANT EXAMINER: Meller, Michael V.
LEGAL REPRESENTATIVE: Zelson, Steve T.; Agris, Cheryl H.
NUMBER OF CLAIMS: 4
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 27 Drawing Figure(s); 27 Drawing Page(s)
LINE COUNT: 810
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB An isolated arabinofuranosidase from **Bacillus** stearothermophilus NRRL B-18659, **Bacillus** stearothermophilus NRRL B-18660 and **Bacillus** stearothermophilus NRRL B-18661 is disclosed. The arabinofuranosidase has a maximum activity at about pH 6.0 and at about 65.degree. C., maintains at least about 50% of its maximum activity at 70.degree. C. and pH 7.0 after 80 minutes, and has an isoelectric point of about 4.4. The arabinfuranosidase can be used in a method of hydrolyzing xylan present in wood pulp at temperatures of at least about 60.degree. C. and a pH of at least about 7.0. The arabinofuranosidase is used along with at least two xylanases and a xylosidase isolated from the above **Bacillus** stearothermophilus strains.

=> d hit 1

L4 ANSWER 1 OF 7 USPATFULL
TI Thermostable arabino furanoside produced by **Bacillus** stearothermophilus NRRL B-18659, **Bacillus** stearothermophilus NRRL B-18660 and **Bacillus** stearothermophilus NRRL B-18661
AB An isolated arabinofuranosidase from **Bacillus**

stearothermophilus NRRL B-18659, **Bacillus** stearothermophilus NRRL B-18660 and **Bacillus** stearothermophilus NRRL B-18661 are disclosed. The arabinofuranosidase has a maximum activity at about pH 6.0 and at about 65.degree. C., maintains at least about 50% of its maximum activity at 70.degree. C. and pH 7.0 after 80 minutes, and has an isoelectric point of about 4.4. The arabinfuranosidase can be used in a method of hydrolyzing xylan present in wood pulp at temperatures of at least about 60.degree. C. and a pH of at least about 7.0. The arabinofuranosidase is used along with at least two xylanases and a xylosidase isolated from the above **Bacillus** stearothermophilus strains.

SUMM Neutral xylanases from obligate **alkalophilic**, thermostable **Bacillus** spp. have been described. [Okazaki, W., T. Akiba, K. Horikoshi, and R. Akahoshi, Appl. Microbiol. Biotechnol. 19 (1984): 335-340.] **Bacillus** isolates W1, W2, W3, and W4 all grow between 40.degree.-50.degree. C. and at a pH above 9.0. The strains reportedly produced two types of neutral xylanases--enzyme I with a pH optimum of 6.0 and a temperature optimum of 65.degree. C., and enzyme II with a temperature optimum of 70.degree. C. and a pH optimum of 7.0.

SUMM A thermostable xylanase produced by a "**Bacillus** stearothermophilus-like" strain has been described. [Gruninger, H., and A. Fiechter, Enzyme Micro. Technol. 8 (1986): 309-314.] Strain 4125 reportedly produces a neutral xylanase with a pH optimum of 6.5-7.5 (but only 65% activity at pH 9.5), a temperature optimum of 75.degree. C., and a half-life of 15 hours at 75.degree. C. No description of activity past pH 9.5 was reported in this reference. Strain 4125 has not been identified by any known culture collections as a B. stearothermophilus isolate, and no taxonomic data was given. The strain is not available from any collection or from the authors.

SUMM Kang, et al. described another xylanase from an **alkalophilic**, thermophilic **Bacillus** sp. [Kang, I. S., N. K. Sung, H. K. Chun, T. Akiba, and K. Horikoshi, Korean J. Appl. Microbiol. Bioeng. 14 (1986): 447-453.] The enzyme from this **Bacillus** strain, K-17, was also reportedly shown to have two components. Xylanase I from K-17 has optimal activity between pH 7.0-8.0 and 65.degree. C. It has no activity at pH 10.5. Xylanase II from K-17 is said to have 20% of its optimal activity at pH 10.5 and retains 70% activity after 1 hour at 65.degree. C., pH 6.5.

SUMM An extracellular xylosidase has been described for **Bacillus** strain K-17 described by Kang, et al. The xylosidase has an optimal activity at pH 7.0 and at 45.degree. C. The enzyme is not thermostable, being completely inactivated after 10 minutes at 60.degree. C.

SUMM Numerous microbial arabinofuranosidases from **Bacillus** spp. other than B. stearothermophilus have been studied and reported. [Karimi, S., and O. P. Ward. Journal of Industrial Microbiology 4 (1989): 173-180.] None of the non-thermophilic Bacilli described by Karimi and Ward produced high temperature active, thermostable arabinofuranosidases.

SUMM Isolate BPS-3, which has been identified by the Deutsche Sammlung Von Mikroorganismen (DSM) as **Bacillus** stearothermophilus, produces an extracellular xylanase composition when grown on xylan, hydrolyzed starch or a mixture of the two substrates. The enzyme composition consists of at least two endoxylanases, a beta-xylosidase, and an alpha-arabinofuranosidase.

SUMM Isolates BPS-3-H-17-4 and BPS-3-X2 are **asporogenous** mutants derived from BPS-3 after mutagenesis with ethylmethanesulfonate. They both produce the enzyme composition and are incapable of forming a terminal endospore.

SUMM This invention also discloses an arabinofuranosidase capable of hydrolyzing both 1,3 and 1,5 alpha-L-arabinofuranosyl linkages and capable of removing arabinose units from the nonreducing end of an arabinose chain. The arabinofuranosidase is also a novel enzyme. In

addition, the literature does not contain any reference for an arabinofuranosidase from thermophilic **Bacillus**.

DETD Culture of Xyl 022. H-17-4, an **asporogenous** mutant of BPS-3, was grown in abatch fermentation at 55.degree. C. for 48 hours on a medium consisting of oat spelts xylan (5 g/l), beech xylan (5 g/l), 0.1% maltrin-100, and pH controlled to 6.5-7.5 by the addition of 2M sodium carbonate and 10% phosphoric acid.

CLM What is claimed is:

1. An isolated arabinofuranosidase having the following characteristics: (a) has a maximum activity at about pH 6.0; (b) has a maximum activity at about 65.degree. C.; (c) maintains at least about 50% of its maximum activity at about 70.degree. C. and pH 7 after 80 minutes; (e) has an isoelectric point of about 4.4; and (f) is obtainable from a strain of **Bacillus** stearothermophilus selected from the group consisting of **Bacillus** stearothermophilus NRRL B-18659, **Bacillus** stearothermophilus NRRL B-18660, and **Bacillus** stearothermophilus NRRL B-18661.

2. The isolated arabinofuranosidase of claim 1 in which said xylosidase is produced by **Bacillus** stearothermophilus NRRL B-18659.

3. The isolated arabinofuranosidase of claim 1 in which said xylosidase is produced by **Bacillus** stearothermophilus NRRL B-18660.

4. The isolated arabinofuranosidase of claim 1 in which said xylosidase is produced by **Bacillus** stearothermophilus NRRL B-18661.

=> d ibib ab2

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=> d ibib ab 2

L4 ANSWER 2 OF 7 USPATFULL

ACCESSION NUMBER:	96:11072 USPATFULL
TITLE:	Thermostable xylosidase produced by **Bacillus** stearothermophilus NRRL B-18659, **Bacillus** stearothermophilus NRRL B-18660 and **Bacillus** stearothermophilus NRRL B-18661
INVENTOR(S):	Zamost, Bruce L., Danbury, CT, United States Elm, Dana D., Waterbury, CT, United States
PATENT ASSIGNEE(S):	Novo Nordisk A/S, Bagsvaerd, Denmark (non-U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 5489526	19960206
APPLICATION INFO.:	US 1995-418331	19950406 (8)

RELATED APPLN. INFO.:	Division of Ser. No. US 1993-87476, filed on 2 Jul 1993, now abandoned which is a continuation of Ser. No. US 1992-961044, filed on 14 Oct 1992, now abandoned which is a continuation of Ser. No. US 1990-535099, filed on 8 Jun 1990, now abandoned
DOCUMENT TYPE:	Utility
PRIMARY EXAMINER:	Naff, David M.
ASSISTANT EXAMINER:	Meller, Mike
LEGAL REPRESENTATIVE:	Zelson, Steve T.; Agris, Cheryl H.
NUMBER OF CLAIMS:	4
EXEMPLARY CLAIM:	1

NUMBER OF DRAWINGS: 27 Drawing Figure(s); 27 Drawing Page(s)
LINE COUNT: 809
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB An isolated xylosidase from **Bacillus** stearothermophilus NRRL B-18659, **Bacillus** stearothermophilus NRRL B-18660 and **Bacillus** stearothermophilus NRRL B-18661 is disclosed. The xylosidase has a maximum activity at about pH 6.0 and at about 75.degree. C., maintains at least about 60% of its maximum activity at about 65.degree. C. and pH 7 after 4 hours, is resistant to end-product inhibition maintaining over 75% of maximum activity in the presence of 1 molar xylose and has an isoelectric point of about 5.0. The xylosidase can be used in a method of hydrolyzing xylan present in wood pulp at temperatures of at least about 60.degree. C. and a pH of at least about 7.0. The xylosidase is used along with at least two xylanases and an arabinofuranosidase isolated from the above **Bacillus** stearothermophilus strains.

=> d ibib ab 3

L4 ANSWER 3 OF 7 EUROPATFULL COPYRIGHT 2000 WILA

GRANTED PATENT - ERTEILTES PATENT - BREVET DELIVRE

ACCESSION NUMBER: 414297 EUROPATFULL EW 199642 FS PS
TITLE: Efficient production of mutant proteases.
Ergiebige Herstellung von Protease-Mutanten.
Production effective de proteases mutantes.
INVENTOR(S): Van der laan, Johannes Cornelis, J. Jongkindstraat 81/1, NL-1062 CP Amsterdam, NL;
Van Eekelen, Christiaan Albertus Gerardus, Bachplaats 14, NL-2661 HD Bergschenhoek, NL
PATENT ASSIGNEE(S): GIST-BROCADES N.V., Wateringseweg 1 P.O. Box 1, NL-2600 MA Delft, NL
PATENT ASSIGNEE NO: 200381
AGENT: Visser-Luirink, Gesina, Dr. et al, c/o GIST-BROCADES N.V., Patents and Trademarks Dept., Wateringseweg 1, P.O. Box 1, 2600 MA Delft, NL
AGENT NUMBER: 69841
OTHER SOURCE: EPB1996066 EP 0414297 B1 961016
SOURCE: Wila-EPS-1996-H42-T1
DOCUMENT TYPE: Patent
LANGUAGE: Anmeldung in Englisch; Veroeffentlichung in Englisch
DESIGNATED STATES: R AT; R BE; R CH; R DE; R DK; R ES; R FR; R GB; R GR; R IT; R LI; R LU; R NL; R SE
PATENT INFO.PUB.TYPE: EPB1 EUROPAEISCHE PATENTSCHRIFT
PATENT INFORMATION:

PATENT NO	KIND	DATE
EP 414297	B1	19961016
'OFFENLEGUNGS' DATE:		19910227
APPLICATION INFO.:	EP 1990-202109	19900802
PRIORITY APPLN. INFO.:	EP 1989-202117	19890811
REFERENCE PAT. INFO.:	EP 130756 A	EP 283075 A
	EP 284126 A	EP 328229 A
	WO 86-01825 A	

REF. NON-PATENT-LIT.: COMUN. JORN. COM. ESP. DETERG., vol. 19, 1988, pages 257-266; J.H. VAN EE et al.: "Protein-engineering of the high alkaline detergent protease Maxacal"

=> d ibib ab 4

L4 ANSWER 4 OF 7 USPATFULL
ACCESSION NUMBER: 95:60106 USPATFULL
TITLE: Detergent composition containing alkaline pullylanase enzyme

INVENTOR(S): Sone, Taeko, Utsunomiya, Japan
Tosaka, Masaki, Utsunomiya, Japan
Saeki, Katsuhisa, Kawachi, Japan
Ara, Katsutoshi, Utsunomiya, Japan
Deguchi, Katsuhiko, Utsunomiya, Japan
Igarashi, Kazuaki, Ichikaimachi, Japan
PATENT ASSIGNEE(S): Kao Corporation, Tokyo, Japan (non-U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 5429766	19950704
APPLICATION INFO.:	US 1993-139148	19931021 (8)

DISCLAIMER DATE: 20090915
RELATED APPLN. INFO.: Division of Ser. No. US 1992-960262, filed on 13 Oct 1992 which is a continuation of Ser. No. US 1991-681007, filed on 5 Apr 1991, now abandoned

	NUMBER	DATE
PRIORITY INFORMATION:	JP 1990-91179	19900405
	JP 1990-91563	19900406

DOCUMENT TYPE: Utility
PRIMARY EXAMINER: Maple, John S.
ASSISTANT EXAMINER: Fries, Kery
LEGAL REPRESENTATIVE: Oblon, Spivak, McClelland, Maier & Neustadt
NUMBER OF CLAIMS: 4
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 17 Drawing Figure(s); 9 Drawing Page(s)
LINE COUNT: 1394
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB A novel detergent composition containing an alkaline pullulanase is disclosed. The alkaline pullulanase has its optimum pH in an alkaline range and not deactivated by surfactants. Further it has strong resistance to almost all detergent components such as chelating agents, protease, etc. The the detergent composition of this invention has excellent detergency especially against starch soils.

=> d ibib ab 4

L4 ANSWER 4 OF 7 USPATFULL
ACCESSION NUMBER: 95:60106 USPATFULL
TITLE: Detergent composition containing alkaline pullylanase enzyme
INVENTOR(S): Sone, Taeko, Utsunomiya, Japan
Tosaka, Masaki, Utsunomiya, Japan
Saeki, Katsuhisa, Kawachi, Japan
Ara, Katsutoshi, Utsunomiya, Japan
Deguchi, Katsuhiko, Utsunomiya, Japan
Igarashi, Kazuaki, Ichikaimachi, Japan
PATENT ASSIGNEE(S): Kao Corporation, Tokyo, Japan (non-U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 5429766	19950704
APPLICATION INFO.:	US 1993-139148	19931021 (8)

DISCLAIMER DATE: 20090915
RELATED APPLN. INFO.: Division of Ser. No. US 1992-960262, filed on 13 Oct 1992 which is a continuation of Ser. No. US 1991-681007, filed on 5 Apr 1991, now abandoned

	NUMBER	DATE
PRIORITY INFORMATION:	JP 1990-91179	19900405
	JP 1990-91563	19900406

DOCUMENT TYPE: Utility
PRIMARY EXAMINER: Maple, John S.
ASSISTANT EXAMINER: Fries, Kery

LEGAL REPRESENTATIVE: Oblon, Spivak, McClelland, Maier & Neustadt
NUMBER OF CLAIMS: 4
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 17 Drawing Figure(s); 9 Drawing Page(s)
LINE COUNT: 1394
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB A novel detergent composition containing an alkaline pullulanase is disclosed. The alkaline pullulanase has its optimum pH in an alkaline range and not deactivated by surfactants. Further it has strong resistance to almost all detergent components such as chelating agents, protease, etc. The the detergent composition of this invention has excellent detergency especially against starch soils.

=> d ibib ab 5

L4 ANSWER 5 OF 7 EUROPATFULL COPYRIGHT 2000 WILA

PATENT APPLICATION - PATENTANMELDUNG - DEMANDE DE BREVET

ACCESSION NUMBER: 634490 EUROPATFULL EW 199503 FS OS STA B
TITLE: Xylanase derived from a **bacillus** species, expression vectors for such xylanase and other proteins, host organisms therefor and use thereof.
Xylanase von einer **Bacillus** Spezies, Expressionsvektoren fuer diese Xylanase und andere Proteine, Wirtsorganismus dafuer und Verwendungen davon.
Xylanase derivee d'une espece de **bacillus**, vecteurs d'expression pour cette xylanase et d'autres proteines, organismes hotes et leur usage.
INVENTOR(S): De Buyl, Eric, Vieux Chemin 5, B-1630 Linkebeek, BE;
Lahaya, Andree, avenue des Pagodes 304, B-1020 Bruxelles, BE;
Ledoux, Pierre, avenue des Dix Arpents 100, B-1200 Bruxelles, BE;
Amory, Antoine, avenue Bal Air 44, B-1330 Rixensart, BE;
Detroz, Rene, chaussee de Louvain 534, B-1390 Ohain, BE;
Andre, Christophe, ruelle des Croix 39, B-1390 Grez-Doiceau, BE;
Vetter, Roman, Warneckeweg 1, D-31303 Burgdorf, DE
PATENT ASSIGNEE(S): SOLVAY (Societe Anonyme), Rue du Prince Albert, 33, B-1050 Bruxelles, BE
PATENT ASSIGNEE NO: 200423
AGENT: Meyers, Liliane et al, Solvay & Cie S.A. Departement de la propriete industrielle 310, rue de Ransbeek, B-1120 Bruxelles, BE
AGENT NUMBER: 721
OTHER SOURCE: ESP1995004 EP 0634490 A1 950118
SOURCE: Wila-EPZ-1995-H03-T1a
DOCUMENT TYPE: Patent
LANGUAGE: Anmeldung in Englisch; Veroeffentlichung in Englisch
DESIGNATED STATES: R AT; R BE; R CH; R DE; R DK; R ES; R FR; R GB; R IT; R LI; R NL; R PT; R SE
PATENT INFO.PUB.TYPE: EPA1 EUROPAEISCHE PATENTANMELDUNG
PATENT INFORMATION:

PATENT NO	KIND	DATE
EP 634490	A1	19950118

'OFFENLEGUNGS' DATE: 19950118
APPLICATION INFO.: EP 1994-202002 19940711
PRIORITY APPLN. INFO.: GB 1993-14780 19930715
ABEN A purified xylanase derived from B. Pumilus PRL B12 is disclosed. This xylanase is efficient for use in the biobleaching of wood pulp, permitting a strong reduction in the quantity of chlorine used and AOX compounds produced in classical and ECF wood pulp bleaching sequences as well as the quantity of ozone used in TCF sequences. The gene coding for the xylanase was isolated and purified and used to construct an expression vector therefor. A recombinant host strain of B.

licheniformis is also disclosed which is efficient for expressing heterologous enzymes, including the xylanase when transformed by the expression vector.

=> d ibib ab 6

L4 ANSWER 6 OF 7 USPATFULL
ACCESSION NUMBER: 94:46648 USPATFULL
TITLE: Detergent composition containing an alkaline pullulanase from **bacillus** ferm BP-3048
INVENTOR(S): Sone, Taeko, Tochigi, Japan
Tosaka, Masaki, Tochigi, Japan
Saeki, Katsuhisa, Tochigi, Japan
Ara, Katsutoshi, Tochigi, Japan
Deguchi, Katsuhiko, Tochigi, Japan
Igarashi, Kazuaki, Tochigi, Japan
PATENT ASSIGNEE(S): Kao Corporation, Tokyo, Japan (non-U.S. corporation)

	NUMBER	DATE
PATENT INFORMATION:	US 5316691	19940531
APPLICATION INFO.:	US 1992-960262	19921013 (7)

DISCLAIMER DATE: 20090915
RELATED APPLN. INFO.: Continuation of Ser. No. US 1991-681007, filed on 5 Apr 1991, now abandoned

	NUMBER	DATE
PRIORITY INFORMATION:	JP 1990-91179	19900405
	JP 1990-91563	19900406

DOCUMENT TYPE: Utility
PRIMARY EXAMINER: Naff, David M.
ASSISTANT EXAMINER: Meller, Michael V.
LEGAL REPRESENTATIVE: Oblon, Spivak, McClelland, Maier & Neustadt
NUMBER OF CLAIMS: 2
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 17 Drawing Figure(s); 9 Drawing Page(s)
LINE COUNT: 1356
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB A detergent composition containing an alkaline pullulanase, a surfactant, alkaline agents and/or inorganic electrolytes, divalent metal ion scavengers and bleaching agents is disclosed. The alkaline pullulanase has an optimum pH range of 8.5-10.0 on pullulan, an optimum temperature of about 50.degree. C. and is not deactivated by surfactants. Further, the pullulanase has a strong resistance to almost all detergent components such as chelating agents, proteases, etc. The pullulanase is isolated from **Bacillus** sp. KSM-AP 1378 deposited as FERM BP-3048. The composition specifically contains 0.1-10 wt. % alkaline pullulanase B, 0.5-60 wt. % surfactant, 0-90 wt. % alkaline agents and/or inorganic electrolytes, 0-50 wt. % divalent metal ion scavengers, and 0-85 wt. % bleaching agents.

=> d ibib ab 7

L4 ANSWER 7 OF 7 CAPLUS COPYRIGHT 2000 ACS DUPLICATE 1
ACCESSION NUMBER: 1991:201180 CAPLUS
DOCUMENT NUMBER: 114:201180
TITLE: A protease-negative **Bacillus** mutant for efficient production of protease analogs
INVENTOR(S): Van der Laan, Johannes Cornelis; Van Eekelen, Christiaan Albertu
PATENT ASSIGNEE(S): Gist-Brocades N. V., Neth.
SOURCE: Eur. Pat. Appl., 36 pp.
CODEN: EPXXDW

DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 414297	A1	19910227	EP 1990-202109	19900802
EP 414297	B1	19961016		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE				
AT 144283	E	19961115	AT 1990-202109	19900802
ES 2095233	T3	19970216	ES 1990-202109	19900802
DD 297187	A5	19920102	DD 1990-343328	19900808
CA 2023094	AA	19910212	CA 1990-2023094	19900810
AU 9060961	A1	19910214	AU 1990-60961	19900810
AU 629970	B2	19921015		
BR 9003956	A	19910903	BR 1990-3956	19900810
JP 03210177	A2	19910913	JP 1990-213562	19900810
RU 2060276	C1	19960520	RU 1990-4830790	19900810
CN 1049866	A	19910313	CN 1990-107928	19900811
PRIORITY APPLN. INFO.:			EP 1989-202117	19890811

AB A protease-neg. **alkalophilic Bacillus** mutant is prepd. by deleting the protease-coding gene via homologous or illegitimate recombination. Transformation of this mutant with an integrating plasmid encoding a protease analog (e.g. with a single base change) results high yield of the protease for use in laundry detergents. Plasmid pM58.DELTA. carrying 5'- and 3'-ends of the protease gene was prepd. and integrated into the chromosomal protease gene locus of **Bacillus** PBT110, an **asporogenous** mutant of **Bacillus** PB92, to obtain protease-neg. **Bacillus** mutants PBT125 and PBT126. Plasmid pBHB-MXL M216Q carrying the gene for the M126Q analog of the PB92 protease was prepd. and used for transformation of mutant PBT125. The yield of the M216Q protease from this host was comparable to that from the parental strain PBT110.